

Amendments to the Specification:

Please replace the paragraph beginning at page 1, line 8, with the following amended paragraph:

The present invention relates to a glass substrate of an information recording medium used in a magnetic disk, a magneto-optic disk, or an optical disk, which are magnetic recording medium of information recording devices such as hard disks. The present invention also relates to a method for manufacturing such a glass substrate and a polishing pad used in the method.

Please replace the paragraph beginning at page 1, line 16, with the following amended paragraph:

Conventionally, to permit a glass substrate of an information recording medium (hereinafter also referred to as a glass substrate) to record high density information, the surface of the glass substrate ~~need~~needs to be as ~~smoothed~~ smooth as possible. Therefore, during manufacturing, a surface of a glass substrate is polished by supplying a polishing agent on the surface and rubbing the surface with a polishing pad so that the surface becomes smooth. For example, Japanese Laid-Open Patent Publication No. 2002-92867 discloses a glass substrate having an improved value of micro-waviness, which is one of the values representing the smoothness of the surface. In the publication, the micro-waviness of a surface of the glass substrate is improved by selecting the surface roughness of a polishing pad. This proposition utilizes a phenomenon that the value of the micro-waviness of a glass substrate depends on the surface roughness of a polishing pad.

Please replace the paragraph beginning at page 3, line 31, with the following amended paragraph:

Further, the present invention provides a method for manufacturing a polishing pad. The polishing pad is formed by sliding a pad dresser made of a metal disk, on the surface of which diamond abrasive grains are electrodeposited, against a non-buff pad made of foam to polish the non-buff pad.

Please replace the paragraph beginning at page 13, line 33, with the following amended paragraph:

In this embodiment, attention is given to a surface portion that is ground off the prior art polishing pad by buffing, that is, to minute cells formed in the portion to be the outer layer 16. These minute cells are opened to form the pores 15. The pores 15, which are formed with the minute cells, are shallow ~~and~~, and even and have small openings. When the surface and cross-section of the soft polisher of this embodiment are viewed with a scanning electron microscope (SEM), the nap layer has two-layer structure as shown in Figs. 3(a) and 3(b). The pores are densely and substantially evenly scattered all over the surface of the soft polisher, and have substantially the same size. The reason why the cells on the surface of the non-buff pad are small is that, during manufacturing of the non-buff pad, the surface of the pad contacts a molding box, and therefore the cells are prevented from inflating.

Please replace the paragraph beginning at page 16, line 10, with the following amended paragraph:

The compression deformation amount, which represents the hardness of the ~~hard~~ soft polisher when viewed macroscopically, is preferably 40 to 60 μm . The compression deformation amount is computed by subtracting the thickness of the soft polisher when compressed to the limit along the thickness from the original thickness. If the compression deformation amount is less than 40 μm , the soft polisher will be excessively hard and likely to damage the surface of the glass workpiece. If the compression deformation amount exceeds 60 μm , the soft polisher will be excessively soft and not capable of sufficiently correct defects on the surface of the glass workpiece.

Please replace the paragraph beginning at page 17, line 15, with the following amended paragraph:

In the former polishing, it is preferable to use a suspension, or slurry in which abrasive grains of cerium oxide are dispersed in water, as a polishing agent. The purpose of selecting cerium oxide ~~is selected~~ as the abrasive grains for the former polishing is to roughly correcting minute defects so that the polishing time in the second polishing is shortened. It is preferable to use abrasive grains ~~the~~ of average size equal to or less than

1.5 μm . More preferably, the average size of the abrasive grains is 0.2 to 1.5 μm . If the average size of the abrasive grains is excessively large, the abrasive grains are likely to form ~~scratch~~ scratches on the surface of the glass workpiece. If the average size of the abrasive grains is excessively small, the polishing amount in a unit of time is decreased, which results in an extended time for polishing.

Please replace the paragraph beginning at page 17, line 31, with the following amended paragraph:

In the rinse process, the polished surface of the glass workpiece is rinsed with cleaning liquid to remove deposits on the surface, such as abrasive grains[,] or crushed pieces of the abrasive grains. As the cleaning liquid, water, pure water, alcohol such as isopropyl alcohol, electrolyzed water obtained by electrolyzing an aqueous solution of inorganic salt such as alkali metal salt such as sodium chloride, or a neutral aqueous solution such as functional water such as dissolved gas water in which gas is dissolved can be used.

Please replace the paragraph beginning at page 19, line 11, with the following amended paragraph:

In the former polishing, the load applied to the soft polisher and the glass workpiece is preferably 50 to 120 g/cm^2 . If the load is less than 50 g/cm^2 , there is a possibility that the glass workpiece is not sufficiently precisely polished in the former polishing. In this case, the values of Ra and NRa of the manufactured glass substrate are increased. In other cases, the polishing time in the latter process needs to be extended so that Ra and NRa of the glass workpiece satisfy the desired values. If the load exceeds 120 g/cm^2 , deformation of the surface of the soft polisher causes minute defects such as micro-waviness to be formed on the surface of the glass workpiece. Also, excessive load increases the values of Ra, NRa or cracks the disk plate in the former polishing.

Please replace the paragraph beginning at page 20, line 1, with the following amended paragraph:

In the rinse process, the load applied to the soft polisher and the glass workpiece is preferably less than ~~that in~~ the load in the former polishing. The load in the rinse process

is preferably equal to or lower than the load in the latter polishing. Specifically, the load in the rinse process is preferably 25 to 70 g/cm². If the load is less than 25 g/cm², deposit cannot be sufficiently removed from the surface of the glass workpiece, or part of the abrasive grains can remain in the pores 15. If the load exceeds 70 g/cm², the load can crack the glass workpiece during the rinse process.

Please replace the paragraph beginning at page 20, line 23, with the following amended paragraph:

The time spent for the rinse process is preferably one to twenty minutes. If the time spent for the rinse process is less than one minute, the polishing agent used in the first polishing process cannot be sufficiently removed. This may form scratches on the surface of the glass workpiece in the second polishing process. If the time is longer than twenty minutes, the remaining polishing agent cannot be further ~~reproved~~removed. The prolonged time for the latter polishing extends the total time of manufacture and lowers the productivity.

Please replace the paragraph beginning at page 23, line 28, with the following amended paragraph:

The number of the pores 15 on the surface of the soft polisher is 400 to 10,000 in 1 mm², and the size of the opening of the pores 15 is 10 to 60 μm. The compression deformation amount of the soft polisher is 40 to 60 μm. Therefore, the soft polisher has a sufficient hardness to ~~corrects~~ correct the surface of the glass workpiece to be polished without damaging the surface of the glass workpiece.

Please replace the paragraph beginning at page 24, line 7, with the following amended paragraph:

In examples 1 and 2, and comparison examples 1 and 2, a glass workpiece was subjected to the first polishing. Then, the glass workpiece was subjected to the second polishing process using a soft polisher as a polishing pad, the soft polisher being made of polyurethane having properties shown in a table 1. The glass workpiece has an inner diameter of 20 mm, an outer diameter of 65 mm, and a thickness of 0.635 mm. In the first polishing ~~proves~~ process, the hard polisher of polyurethane was used as a polishing pad,

and a polishing agent containing abrasive grains of cerium oxide having an average size of approximately $1.2\ \mu\text{m}$ was used, and the polishing pressure was set to $100\ \text{g}/\text{cm}^2$. In the second polishing process, a polishing agent containing abrasive grains of cerium oxide having an average size of approximately $0.8\ \mu\text{m}$ was used in the former polishing. In the latter polishing process, a polishing agent containing abrasive grains of colloidal silica having a D_{50} of approximately $0.15\ \mu\text{m}$ was used. Machining conditions of the second polishing process were that the former polishing was performed for five minutes with a load of $80\ \text{g}/\text{cm}^2$, the rinse process was preformed for five minutes with a load of $60\ \text{g}/\text{cm}^2$, and the latter polishing was performed for five minutes with a load of $60\ \text{g}/\text{cm}^2$. The soft polishers used in the examples 1 and 2 had been formed by subjecting non-buff pads to the pad dressing process. The soft polishers used in the comparison examples 1 and 2 had been polished with a buff. After polishing, the height NRa of micro-waviness was measured for each glass workpiece. The results are shown in the following table 1.